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# Review of “Modern Cosmology and Philosophy”

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# Essays in Philosophy

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## Book Review

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*Modern Cosmology and Philosophy*, John Leslie, Editor, Amherst, New York, Prometheus Books, 1998. ISBN 1-57392-250-1 pbk. \$21.00.

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This book is actually the revised edition of the 1992 anthology *Physical Cosmology and Philosophy*. It probably ought to have been titled *Cosmology from Geocentrism to Egocentrism*, of which more later.

In distinction from the more historically organized anthologies, this probably is (and was in its earlier form) the best anthology available on the issues at the philosophical edge of contemporary cosmology. Almost all the chronic worries about the Big Bang are represented; the possibility of multiple universes find an intelligent presentation; and for those with theological interests, reasonable starting points for discussion are provided. In fact, all but one of the papers added for this addition address the last of these.

The usefulness of the anthology in a given course will depend on the usual two things: the preparation of students in the sciences and the range of questions to be covered. In my case, for example, the course is built around the history of Western cosmological thinking from the geometry of the ancient Egyptians to ... as far as we can get. I'm less interested in the eternally unanswerable questions than I am in the succession of answerable ones. So for my purposes the anthology is a very inefficient way to give my students a look at the contemporary situation. In addition, their preparation is only rarely adequate to handle much more than the main threads. Far more accessible and quickly informative is Martin Rees' *Our Cosmic Habitat*, for example. Of course the philosophy majors are always eager to make *a priori* assaults on the metaphysical subtleties without understanding the science, but I try to discourage that. Other agenda will, of course, create a place for the Leslie anthology, and, indeed, two good chapters by Rees have been added to strengthen the account of the current scientific state of affairs.

In any case, use of the anthology definitely imposes a lot of categorial imperatives on the teacher. For instance, advanced science students should be used to the connection between ratios and constants, especially dimensionless constants, but in fact they often haven't thought it through to the depth they need to if they're really going to understand, say, the "gravitational coupling constant" at the root of Dirac's cosmology. And that's only one among the many numbers of that sort absolutely crucial for understanding nearly every debate on the standard model. It takes time and patience to get the background in place; you can't do justice to the anthology (or the students) if you skimp.

I've admitted to a limited interest in the metaphysical issues floating around at the edge of

cosmology, while many philosophers will naturally find them the core of their interest. For example, the anthropic principle might intrigue them. If so, I apologize for my attitudinal deficiencies in the following (brief) way: First, it doesn't seem to me worth looking at all that difficult modern cosmological thinking unless we concede both that we've learned a lot in the last century or so, and that we've quite obviously got a lot more to learn. So, for example, we've learned that in no significant sense is the universe geocentric, except in the sense that everything is and always has been at the "center." Now, dedicated flat-earthers are fond of pointing out that with enough epicycling, you can articulate the geometry of our star system, galaxy, and so on in a way that preserves geocentricity.

Now, the reply is that the physics then gets to be intolerably weird, and, in fact, downright mysterious. But more simply, any geometric gymnastics available for geocentrists are available for Venuscentrics, Beta Draconians, and, indeed, enthusiasts of just any old place in the universe you choose. In order for geocentric geometry to have any point to it, some reason to give priority to the earth has to be provided; and there is no such reason short of outright egocentrism. So the next job is to work on the egocentrism: call it "the anthropic principle." The anthology under review has several versions of the principle to choose from or to use as a starting point. They all offer variant readings of the principle that whatever the universe is, it has to be consistent with human existence. The excitement is generated by noting how small the window of consistency is in terms of some of the key numbers involved in understanding the standard model.

Well, that's fine; but the issues are the same as they were for geocentrism, and I want to serve notice that we cockroach lovers (with our Have-A-Heart roach motels) are ready and waiting to articulate our scaraphagic principle. We'd have done so already, except we're daunted by the thought that out of fairness we're going to have to allow all the other loonies into the debate as well. So none of our work is represented in the anthology -- and all to the credit of the anthology, which remains a very fine one, and even improved from the last edition.

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